



# MI FluFocus

## Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology  
Bureau of Laboratories



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### ***New updates in this issue:***

- **Michigan Surveillance:** Influenza activity is now widespread; numerous school closures reported.
  - **National Surveillance:** Activity continues to increase; ILI is elevated in all regions.
  - **International Surveillance:** Northern Hemisphere activity continues increasing.
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### **\*\*\*2009 Influenza A (H1N1) virus Updates\*\*\***

On August 17 and September 18, MDCH released guidance for healthcare providers, laboratorians and public health personnel regarding appropriate patients for influenza testing at the MDCH lab and reporting of influenza hospitalizations and deaths. The guidance is available at [www.michigan.gov/h1n1flu](http://www.michigan.gov/h1n1flu).

Please continue to reference the State of Michigan's novel 2009 influenza A (H1N1) website at [www.michigan.gov/h1n1flu](http://www.michigan.gov/h1n1flu) and the MDCH influenza website at [www.michigan.gov/flu](http://www.michigan.gov/flu) for additional information. Local health departments can find guidance documents in the MI-HAN document library. In addition to the previous websites, additional laboratory-specific information is located at the Bureau of Laboratories H1N1 page at [http://www.michigan.gov/mdch/0,1607,7-132-2945\\_5103-213906--,00.html](http://www.michigan.gov/mdch/0,1607,7-132-2945_5103-213906--,00.html).

**International (WHO Pandemic H1N1 2009 update 70 [edited], October 16):** Influenza activity continues to increase in the northern temperate zones across the world. In North America, the United States is now experiencing nationwide rates of Influenza-Like Illness (ILI) well above seasonal baseline rates with high rates of pandemic H1N1 2009 virus detections in clinical laboratory specimens. Canada is reporting increases in ILI rates for the third straight week with some provinces now crossing the baseline. Mexico also reports high intensity and active transmission in some areas of the country. Western Europe and northern Asia are experiencing increased rates of ILI, well above baseline in some countries but activity is generally not as widespread as in North America. Of note, nearly half of the influenza viruses detected in China are seasonal influenza A (H3N2) viruses, which appeared prior to and is co-circulating with pandemic H1N1 2009 virus.

The tropical zones continue to have transmission that is mixed as some countries have now peaked and are declining, while others are experiencing increases. In the tropical region of the Americas, several Caribbean Island nations are now reporting increased rates of illness while Brazil, Costa Rica and other countries on the continent are declining. In South Asia, most countries now report a decline in rates of illness. Influenza rates in the temperate zones of the Southern Hemisphere have all returned to below baseline levels and very few detections of pandemic H1N1 2009 virus are being reported.

Three articles of interest published this week in the peer reviewed literature reported three different series of seriously ill pandemic influenza patients in Canada, Mexico, Australia, and New Zealand. Several important observations were made including:

- A significant portion of patients with severe disease requiring intensive care had no predisposing conditions. The numbers are not directly comparable as the studies categorized conditions differently but nearly 1/3 of ICU patients in Australia and New Zealand had no predisposing conditions. 98% of ICU cases in Canada had a comorbid condition, which in this report included hypertension, smoking, and substance abuse, but only 30% had comorbid conditions that were considered "major". In Mexico, 84% of critical patients had an underlying condition, which in the report included hypertension, ever having smoked, and hyperlipidemia, conditions that are not considered risk factors for severe influenza outcomes. All three groups were impressed by the number of severe cases occurring in previously healthy individuals.

- The researchers in Australia and New Zealand reaffirmed that infants under the age of 1 year have the highest risk of developing severe illness. The average age of ICU patients was 32, 40, and 44 years in Canada, Australia/New Zealand, and Mexico respectively.
- The study from Australia and New Zealand estimated that the demand for ICU beds due to viral pneumonia during the pandemic was as much higher than in previous influenza seasons. The Canadian study reported that intensive care capacity in Winnipeg, Manitoba, was "seriously challenged" at the peak of the outbreak with full occupancy of all regional ICU beds.

All pandemic H1N1 2009 influenza viruses analyzed to date have been antigenically and genetically similar to A/California/7/2009-like pandemic H1N1 2009 virus. Systematic surveillance conducted by the Global Influenza Surveillance Network (GISN), continues to detect sporadic incidents of H1N1 pandemic viruses that show resistance to the antiviral oseltamivir.

Region	Cumulative total as of 11 October 2009	
	Cases*	Deaths
WHO Regional Office for Africa (AFRO)	12456	70
WHO Regional Office for the Americas (AMRO)	153697	3406
WHO Regional Office for the Eastern Mediterranean (EMRO)	13855	90
WHO Regional Office for Europe (EURO)	Over 61000	At least 207
WHO Regional Office for South-East Asia (SEARO)	39522	530
WHO Regional Office for the Western Pacific (WPRO)	118702	432
Total	Over 399232	At least 4735

\*Given that countries are no longer required to test and report individual cases, the number of cases reported actually understates the real number of cases.

### \*\*\*Influenza Surveillance Reports\*\*\*

**Ed. Note: The 2009-10 influenza season began on Oct. 4, 2009. Data was reset at that time, except for influenza hospitalizations and deaths, which is reported from Sept. 1, 2009 per CDC guidance.**

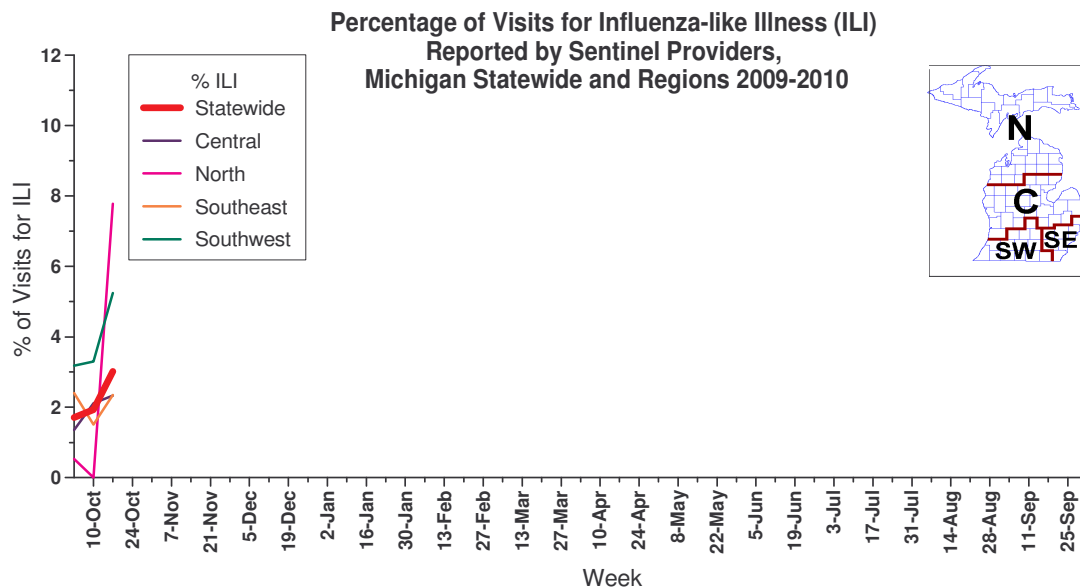
**Michigan Disease Surveillance System:** The week ending October 17 saw aggregate flu-like numbers slightly increase, while individual influenza reports nearly doubled from the previous week. Novel influenza reports saw an increase over the previous week's numbers. Aggregate numbers are slightly higher than numbers seen this time last year, while individual reports are noticeably higher than the same reporting week last year.

During the week of October 11-17, 2009, 13,203 cases of flu-like illness and confirmed and probable cases of seasonal and novel influenza were reported in Michigan. 36 hospitalizations and 1 death associated with influenza were also reported during this time. This report is updated every Tuesday by 5:00 pm and can be accessed at a link on this website: <http://www.michigan.gov/h1n1flu>.

**Emergency Department Surveillance:** Emergency department visits from constitutional complaints continue to sharply increase, while respiratory complaints were near last week's levels. Compared to the same time period last year, constitutional reports are considerably higher, and respiratory numbers are slightly higher. Twenty-five constitutional alerts, in the SE(1), SW(6), C(10), and N(3) Influenza Surveillance Regions, along with 5 statewide alerts, were generated last week. Further, five respiratory alerts were generated in the SE(1), SW(1), C(2), and N(1) Influenza Surveillance Regions last week.

**Over-the-Counter Product Surveillance:** This week, OTC product sales were consistent with the previous week's sales, with a couple of exceptions. Thermometer sales began to see a slight increase over the already elevated previous week's levels. All other sales indicators remain near their previous week's levels. All sales indicators, with the exception of thermometer sales, which are slightly higher, are comparable to levels seen at this time last year.

**Sentinel Provider Surveillance (as of October 22):** During the week ending October 17, 2009, the proportion of visits due to influenza-like illness (ILI) increased notably compared to the previous week at 3.0% overall; 332 patient visits due to ILI were reported out of 10,989 office visits. 32 sites provided data for this report. Activity increased in all four surveillance regions: Central (2.3%); North (7.8%); Southeast (2.3%); and Southwest (5.2%). One site that attributed to the significant increase in the North region reported 31.2% ILI. Pediatrician offices reported a mean ILI of 4.8% and Student Health Centers reported a mean of 4.1%. Please note that these rates may change as additional reports are received.



As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or [CarltonC2@michigan.gov](mailto:CarltonC2@michigan.gov) for more information.

**Laboratory Surveillance (as of October 17):** For the 2009-2010 season (starting on October 4, 2009), MDCH Bureau of Laboratories has identified 75 influenza isolates:

- Novel Influenza A (H1N1): 73
- Influenza A unsubtypeable: 1
- Influenza B: 1

16 sentinel labs reported for the week ending October 17, 2009. 11 labs reported moderate to rapidly increasing influenza A positives (SE, SW, C), and 5 labs had steady to slightly increasing A positives (SE, C, N). 2 labs reported sporadic influenza B positives (C, N); 14 labs had zero B positives (SE, SW, C, N).

**Michigan Influenza Antigenic Characterization (as of October 22):** Recent updates were received regarding antigenic characterization data for Michigan for the 2008-09 influenza season. 3 influenza A/H3N2 isolates, one of which was collected in early August, have been antigenically characterized at the CDC as A/Brisbane/10/2007-like, which matches the A/H3N2 component of this season's vaccine. One A/H3N2 isolate, collected in late July, has been characterized as a A/Perth/16/2009-like virus. The A/Perth/16/2009-like strain has recently evolved from A/Brisbane/10/2007 and was recommended by WHO as the influenza A(H3N2) vaccine strain for the 2010 Southern Hemisphere influenza vaccine.

2 additional Michigan pandemic influenza A (H1N1) specimens from the 2008-09 season have been antigenically characterized by the CDC as A/California/07/2009-like (H1N1)v. This strain is the variant reference virus selected by WHO for the pandemic influenza A(H1N1) vaccine.

CDC antigenic characterization results are currently not available for any 2009-10 season specimens.

**Michigan Influenza Antiviral Resistance Data (as of October 22):** Results are currently not available for antiviral resistance at CDC for the 2009-2010 season.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza. The guidance is available at <http://www.cdc.gov/H1N1flu/recommendations.htm>.

**Seasonal Influenza-Associated Pediatric Mortality (as of October 22):** No influenza-associated pediatric mortalities have been reported to MDCH for the 2009-2010 influenza season.

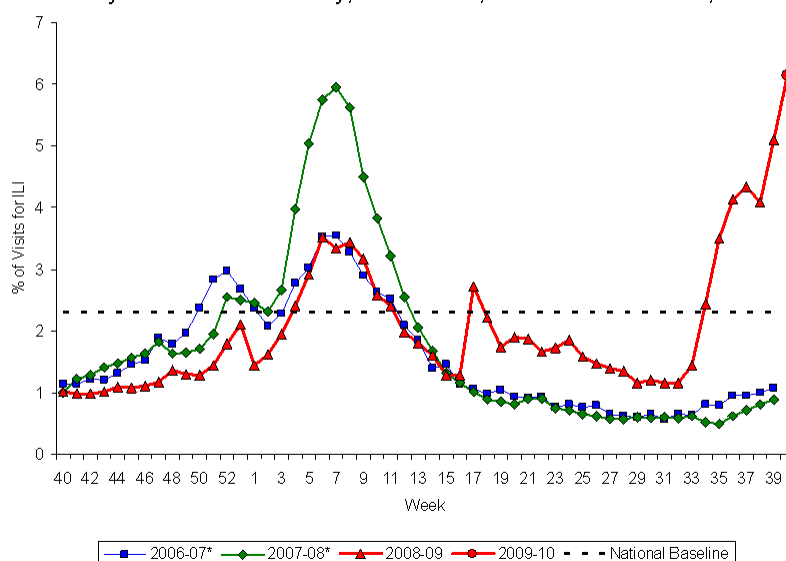
\*\*\*CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at [http://www.michigan.gov/documents/mdch/ME\\_pediatric\\_influenza\\_guidance\\_v2\\_214270\\_7.pdf](http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf).

**Influenza Congregate Settings Outbreaks (as of October 22):** Four congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (3 SW, 1C), and two outbreaks associated with positive influenza A tests (1C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are all school facilities.

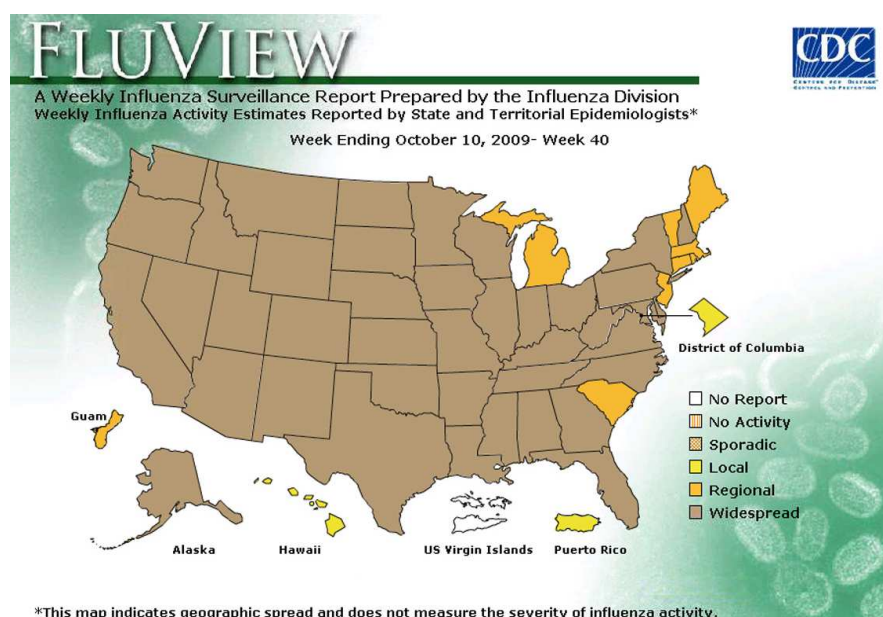
As of 3:45pm on October 22, 231 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 23, Region 2N - 1, Region 3 - 4, Region 5 - 117, Region 6 - 51, Region 7 - 18, Region 8 - 17) have been reported.

**National (CDC [edited], October 16):** During week 40 (October 4-10, 2009), influenza activity increased in the U.S. 4,093 (29.4%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. All subtyped influenza A viruses being reported to CDC were 2009 influenza A (H1N1) viruses. The proportion of deaths attributed to pneumonia and influenza (P&I) was above the epidemic threshold. Eleven influenza-associated pediatric deaths were reported. Ten of these deaths were associated with 2009 influenza A (H1N1) virus infection and one was associated with an influenza A virus, for which subtype is undetermined. The proportion of outpatient visits for influenza-like illness (ILI) was above the national baseline. All 10 regions reported ILI above region-specific baseline levels. Forty-one states reported geographically widespread influenza activity, Guam and eight states reported regional influenza activity, one state, the District of Columbia, and Puerto Rico reported local influenza activity, and the U.S. Virgin Islands did not report.

Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), Weekly National Summary, October 1, 2006 - October 10, 2009



\*There was no week 53 during the 2006-07 or 2007-08 influenza seasons, therefore the week 53 data point for those seasons is an average of weeks 52 and 1.



To access the entire CDC weekly surveillance report, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>

From <http://www.cdc.gov/h1n1flu/updates/us/#totalcases>:

*U.S. Influenza and Pneumonia-Associated Hospitalizations and Deaths from Aug 30 – October 10, 2009*

Cases Defined by	Hospitalizations	Deaths
Influenza and Pneumonia Syndrome*	15,696	2,029
Influenza Laboratory-Tests**	4,958	292

\*Reports can be based on syndromic, admission or discharge data, or a combination of data elements that could include laboratory-confirmed and [influenza-like illness](#) hospitalizations.

\*\*Laboratory confirmation includes any positive influenza test (rapid influenza tests, RT-PCR, DFA, IFA, or culture), whether or not typing was done.

**International (WHO, October 2):** During the weeks 38-39, the pandemic influenza A (H1N1) virus continued to be the predominant circulating strain of influenza in most of the countries with influenza activity. Widespread outbreaks of pandemic influenza A (H1N1) were reported in the some parts of North America, Europe and Asia. The United States of America and China Hong Kong Special Administrative Region reported widespread pandemic influenza A (H1N1) activity together with low levels of H1, H3 and B viruses. Israel had widespread pandemic influenza A (H1N1) activity while China reported regional outbreaks of pandemic influenza A (H1N1) with cocirculation of H3, H1 and B. Japan and Spain also reported regional outbreaks of pandemic influenza A (H1N1). Belgium, Canada and Ireland reported increasing pandemic influenza A (H1N1) activity while local outbreaks were reported by the Netherlands and Slovenia. In parts of India, Bangladesh and Cambodia, pandemic influenza A (H1N1) transmission continued to be active. In Central America, Mexico, Cuba, Jamaica, Bahamas, Dominica, Saint Lucia, Costa Rica, Nicaragua, Panama and El Salvador reported outbreaks of pandemic influenza A (H1N1). Pandemic influenza transmission in the southern hemisphere continued to decrease or had returned to baseline. Sporadic pandemic influenza A (H1N1) 2009 activity was reported in Argentina, Chile, Denmark, France, France - French Guiana, France - Guadeloupe, France - New Caledonia, Greece, Iran (Islamic Republic of), Italy, Kenya, Latvia, Netherlands, New Zealand, Norway, Poland, Romania, Russian Federation, Slovenia, South Africa and Ukraine.

The level of seasonal influenza activity in most countries was low with only sporadic detections except in China where outbreaks of H3 were reported as well as low levels of H1 and B. Sporadic seasonal influenza activity was observed in Australia (H1), Côte d'Ivoire (H3,B), Denmark (H3), France - French Guiana (H1), France - Guadeloupe (H3), Kenya (H1,H3,B), Lithuania (H1), Madagascar (B), Morocco (H1,H3), Norway (B), Russian Federation (H1,H3,B) and South Africa (H3,B).

Austria, Bulgaria, Cameroon, Estonia, France - Saint Barthélemy, France - Saint Martin, Georgia, Kyrgyzstan, Serbia, Slovakia, Sudan, Switzerland, Tunisia and Uzbekistan reported no influenza activity.

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MDCH reported **WIDESPREAD INFLUENZA ACTIVITY** to the CDC for the week ending Oct. 17, 2009.

For those interested in additional influenza vaccination and education information, the MDCH *FluBytes* is available at [http://www.michigan.gov/mdch/0,1607,7-132-2940\\_2955\\_22779\\_40563-125027--,00.html](http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html).

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### **Avian and Novel Influenza Activity**

**WHO Pandemic Phase:** Phase 6 – characterized by increased and sustained transmission in the general population. Human to human transmission of an animal or human-animal influenza reassortant virus has caused sustained community level outbreaks in at least two WHO regions.

**National, Swine (USDA press release, October 19):** Agriculture Secretary Tom Vilsack today announced that USDA's National Veterinary Services Laboratories (NVSL) has confirmed the presence of 2009 pandemic H1N1 influenza virus in a pig sample collected at the Minnesota State Fair submitted by the University of Minnesota. Additional samples are being tested.

"We have fully engaged our trading partners to remind them that several international organizations, including the World Organization for Animal Health, have advised that there is no scientific basis to restrict trade in pork and pork products," said Vilsack. "People cannot get this flu from eating pork or pork products. Pork is safe to eat."



Sequence results on the hemagglutinin, neuraminidase and matrix genes from the virus isolate are compatible with reported 2009 pandemic H1N1 sequences. The samples collected at the 2009 Minnesota State Fair were part of a University of Iowa and University of Minnesota cooperative agreement research project funded by the U.S. Centers for Disease Control and Prevention which documents influenza viruses where humans and pigs interact at such as fairs.

The infection of the fair pig does not suggest infection of commercial herds because show pigs and commercially raised pigs are in separate segments of the swine industry that do not typically interchange personnel or animal stock. USDA continues to remind U.S. swine producers about the need for good hygiene, biosecurity and other practices that will prevent the introduction and spread of influenza viruses in their herd and encourage them to participate in USDA's swine influenza virus surveillance program.

More information about USDA's 2009 pandemic H1N1 efforts is available at [www.usda.gov/H1N1flu](http://www.usda.gov/H1N1flu).

**National, Ferret (The Oregonian [edited], October 20):** It appears that certain pets can catch swine flu from their owners.

Oregon just registered its 1st case of a natural human-animal transmission of the H1N1 virus. Actually, it may be the 1st such recorded case anywhere, said Emilio DeBess, Oregon state public health veterinarian.

A ferret, whose owner had shown flu-like symptoms, tested positive for swine flu on [8 Oct 2009].

The owners took the ferret to a veterinary clinic in Portland on 5 Oct 2009 (DeBess said the clinic asked not to be identified.) The animal had severe respiratory illness and showed many of the symptoms people associate with the flu: fever, weakness, coughing, and sneezing.

After hearing that the owner suffered from flu symptoms just before the ferret got sick, the treating veterinarian called DeBess, whose responsibilities include serving as a consultant to Oregon vets.

DeBess asked the vet to send in a sample of the ferret's nasal secretions. It was tested at an Oregon State University lab, which found genetic markers for the strain of H1N1 that's infecting humans. A lab of the U. Department for Agriculture confirmed the finding on 9 Oct 2009.

This came as little surprise to DeBess. Ferrets, which are sensitive toward respiratory illness, have been used in labs to see how the flu will affect people, he said. But this may be the 1st case anywhere of a ferret catching the flu from its owner, without the help of lab technicians, he said.

The ferret is recovering.

DeBess put the staff at the clinic on "fever watch" after the test results came in. No one at the clinic had gotten sick as of last week [week of 12 Oct 2009], he said.

Ferret owners need to be careful during flu season. And that goes both ways. If you have a ferret that's sneezing and coughing, wash your hands a lot and definitely take it to a vet. If you are sick with flu-like symptoms, handle your ferret sparingly. Don't cough or sneeze near it.

The same is true for birds, DeBess said. Birds are basically the origin of all flu viruses, historically, and they "can get any and all flu viruses," he said. However, no cases of birds contracting H1N1 are documented in this country.

In the past 5 years the flu virus has mutated into a strain called H3N8, which infects dogs. It's not known to transmit to humans. No known strain infects cats, and neither cats nor dogs can carry H1N1.

**International, Avian (Toronto Sun, October 20):** Ontario's top medical official says an outbreak of swine flu among turkeys is a "clarion call" for poultry and livestock workers to get both the seasonal and H1N1 flu shots.

Dr. Arlene King, Ontario's chief medical officer of health, says "the risk to human health from this situation is minimal" after some turkeys tested positive for the H1N1, or swine flu virus.

Provincial officials say the outbreak affected an Ontario breeder's flock of turkeys which were not destined for the food chain.

Dr. Deb Stark, Ontario's chief veterinarian, says the situation likely involved human to bird transmission.

Stark says the flock operator voluntarily quarantined the infected birds and put "movement controls in place."

She says the finding "does not pose a food safety risk."

While officials declined to name the farm, the Turkey Farmers of Canada said on its website that the birds belonged to Hybrid Turkeys, a breeder based in Kitchener, Ont.

The findings will be of keen interest internationally, coming just days after the publication of a study that suggested turkeys are not susceptible to the pandemic virus.

The work, done by researchers in Italy, was published late last week in the online journal Eurosurveillance.

Well-known influenza researcher Dr. Ilaria Capua and colleagues at the OIE collaborating centre for infectious diseases at the human-animal interface in Venice tried to infect turkeys with the new H1N1 virus. The OIE is the acronym used by the Paris-based World Organization for Animal Health.

Turkeys are generally very susceptible to influenza viruses and one would expect to see illness among birds if they became infected with a flu virus, Capua said in an interview Tuesday.

But while her team exposed turkeys to massive doses of H1N1 virus, they saw no evidence of infection in the birds. Nor did they find any evidence of virus in the lungs or tissues of the turkeys.

Capua said teams of researchers in Britain and the U.S. have also tried to experimentally infect turkeys, also without success.

Ontario isn't the first jurisdiction to report finding H1N1 virus in turkeys. Officials in Chile announced in August that they had found the virus in turkey there.

But some leading influenza experts have quietly expressed skepticism about that earlier report, musing whether lab contamination could be responsible for the finding.

Capua said a lot of questions need to be answered about the new discovery in Ontario, including whether the full genetic sequence of the virus has been checked to ensure that it is the pandemic virus and not another H1N1 variant.

"Before we say that this virus can spill into turkeys or into birds, I would really make sure that it's the right virus. And that there's no possible concern about any human error or contamination and that all the internal genes have been sequenced," she said.

**International, Avian (Worldpoultry.net, October 20):** Agricultural authorities in the Ivory Coast report that 30 wild white-necked ravens have been found dead and 9 tested positive on the highly pathogenic avian influenza virus H5N1.

The birds died suddenly while they were flying over the secondary school located at Cocody in Abidjan. The school was closed for 3 days. The staff members who handled the birds are under medical supervision.

The site and its surroundings have been completely disinfected using Virkon. A surveillance zone was established within a 2 km [1.2 mi] radius around the point where the birds fell.

**International, Swine (OIE [edited], October 21):** Information received on 21 Oct 2009 from Dr Toshiro Kawashima, CVO, Animal Health Division, Ministry of Agriculture, Forestry and Fisheries, Tokyo, Japan

Report type: immediate notification

Start date: 2 Oct 2009

Date of 1st confirmation of the event: 21 Oct 2009

Date submitted to OIE: 21 Oct 2009

Zoonotic impact: no workers in the farm have contracted influenza-like illness during at least one month prior to this incident.

Causal agent: pandemic Influenza H1N1 2009

Total outbreaks: 1

Outbreak 1: Osaka area, Osaka

Date of start of the outbreak: 2 Oct 2009; Outbreak status: continuing (or date resolved not provided)

Species: swine

Susceptible: 1000; Cases: 10; Deaths: 0; Destroyed: 0; Slaughtered: 0

Affected population: integrated farrow-to-finish farm with approximately 100 breeding sows and a total of 1000 pigs.

Apparent morbidity rate: 1 percent; Apparent mortality rate: 0 percent; Apparent case fatality rate: 0 percent

Proportion susceptible animals lost\*: 0 percent \*Removed from the susceptible population through death, destruction, and/or slaughter

Epidemiological comments: This is the 1st infection of pandemic influenza H1N1 2009 in swine in Japan. The infection was detected through surveillance conducted by prefectural veterinary authority. The virus was isolated from a pool of 10 nasal swabs directly collected randomly from pigs without clinical signs on 2 Oct 2009. The subtype H1 was confirmed by National Institute of Animal Health (NIAH) on 20 Oct 2009 while the subtype N1 was confirmed on 21 Oct 2009. The affected farm is under voluntary movement restraint. No abnormalities are observed in pigs within a 10 km [6 mi] radius around the affected farm. Epidemiological investigations are continuing.

Control measures

Measures applied: movement control inside the country; no vaccination; no treatment of affected animals

Measures to be applied: screening

**Michigan Wild Bird Surveillance (USDA, as of October 22):** For the 2009 testing season (April 1, 2009-March 31, 2010), HPAI subtype H5N1 has not been recovered from any of the 44 Michigan samples tested to date, including 34 live wild bird and 10 morbidity/mortality specimens. H5N1 HPAI has not been recovered from 11,870 bird or environmental samples tested nationwide for the 2009 season. For more information, visit the National HPAI Early Detection Data System at <http://wildlifedisease.nbii.gov/ai/>.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at <http://www.michigan.gov/emergingdiseases>.

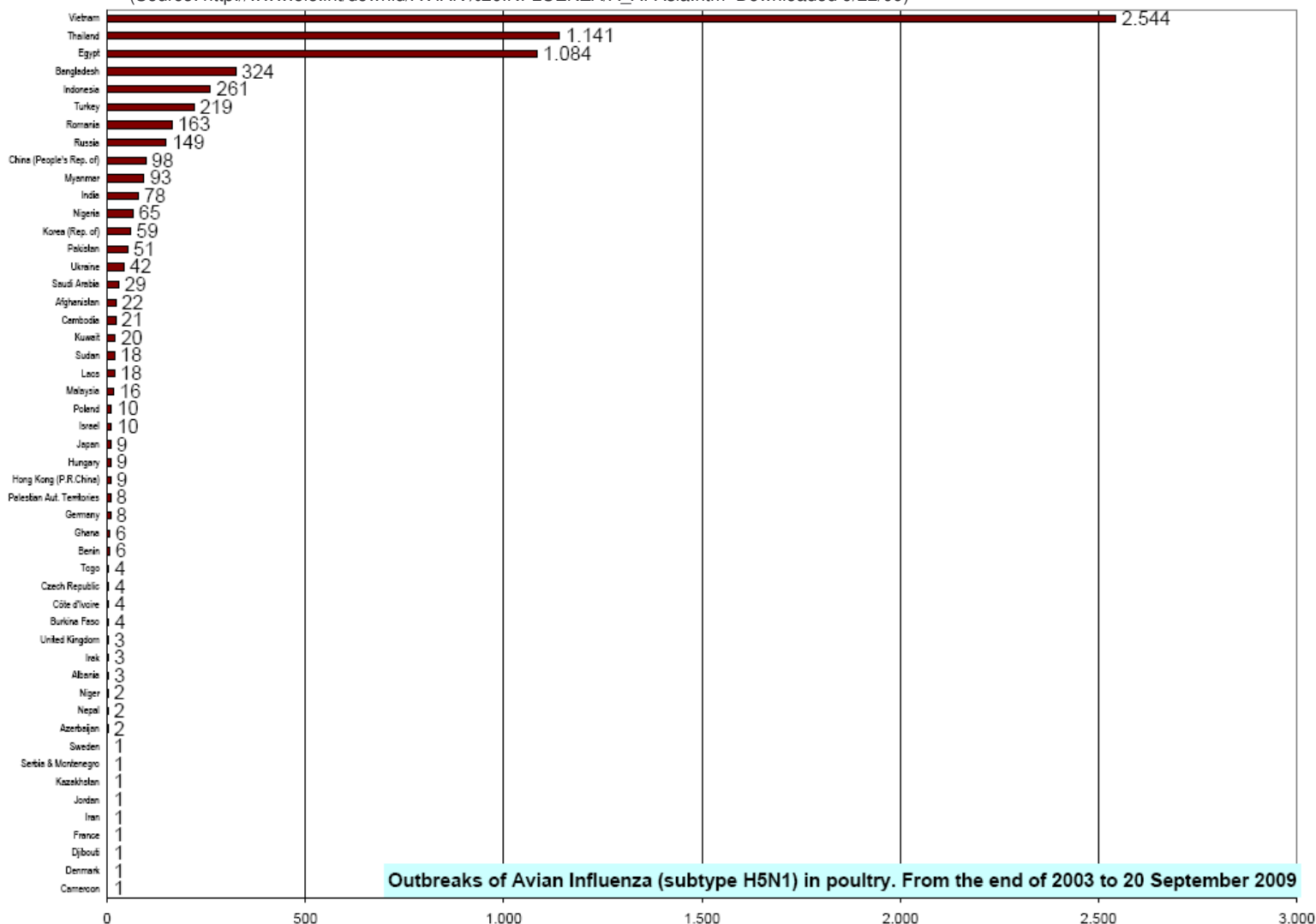
**Please contact Susan Peters at [PetersS1@Michigan.gov](mailto:PetersS1@Michigan.gov) with any questions regarding this newsletter or to be added to the weekly electronic mailing list.**

**Contributors**

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**Table 1. H5N1 Influenza in Poultry (Outbreaks up to September 20, 2009)**(Source: [http://www.oie.int/downld/AVIAN%20INFLUENZA/A\\_AI-Asia.htm](http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm) Downloaded 9/22/09)**Table 2. H5N1 Influenza in Humans (Cases up to September 24, 2009)**

(http://www.who.int/csr/disease/avian\_influenza/country/cases\_table\_2009\_09\_24/en/index.html Downloaded 9/24/2009)

Cumulative number of lab-confirmed human cases reported to WHO. Total number of cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	0	0	8	7
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	38	25
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	36	4	87	27
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	0	0	141	115
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	4	4	111	56
Total	4	4	46	32	98	43	115	79	88	59	44	33	47	12	442	262